

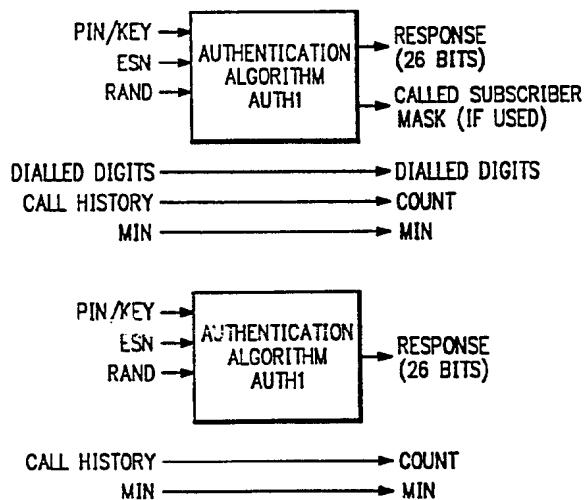
UK Patent Application GB 2 261 579 A

(43) Date of printing by UK Office 19.05.1993

(21) Application No 9226468.8	(51) INT CL ⁵ H04L 9/32
(22) Date of filing 18.07.1991	(52) UK CL (Edition L) H4P PDCSA U1S S2204 S2213
(30) Priority data (31) 556890 (32) 23.07.1990 (33) US	(56) Documents cited by ISA US 4914696 A US 4876740 A US 4827507 A US 4549308 A
(86) International application data PCT/US91/05078 En 18.07.1991	(58) Field of search by ISA US CL. 380/21,23,28,43,44,46,47,48,49,50, 455/33, 375/107,110,112. 370/103,105,107, 379/59,60.
(87) International publication data WO92/02087 En 06.02.1992	
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(54) Authentication system for digital cellular communications

(57) A system for the authentication of mobile stations and base stations in a cellular communications network. The system includes an algorithm which generates not only a key dependent response to a random challenge, but also a temporary conversation key or call variable which may be used to encipher traffic in the network. To protect against clones in the network, the algorithm uses a rolling key which contains historical information. A bilateral authentication procedure may be used to update the rolling key and to generate a new conversation key.



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